

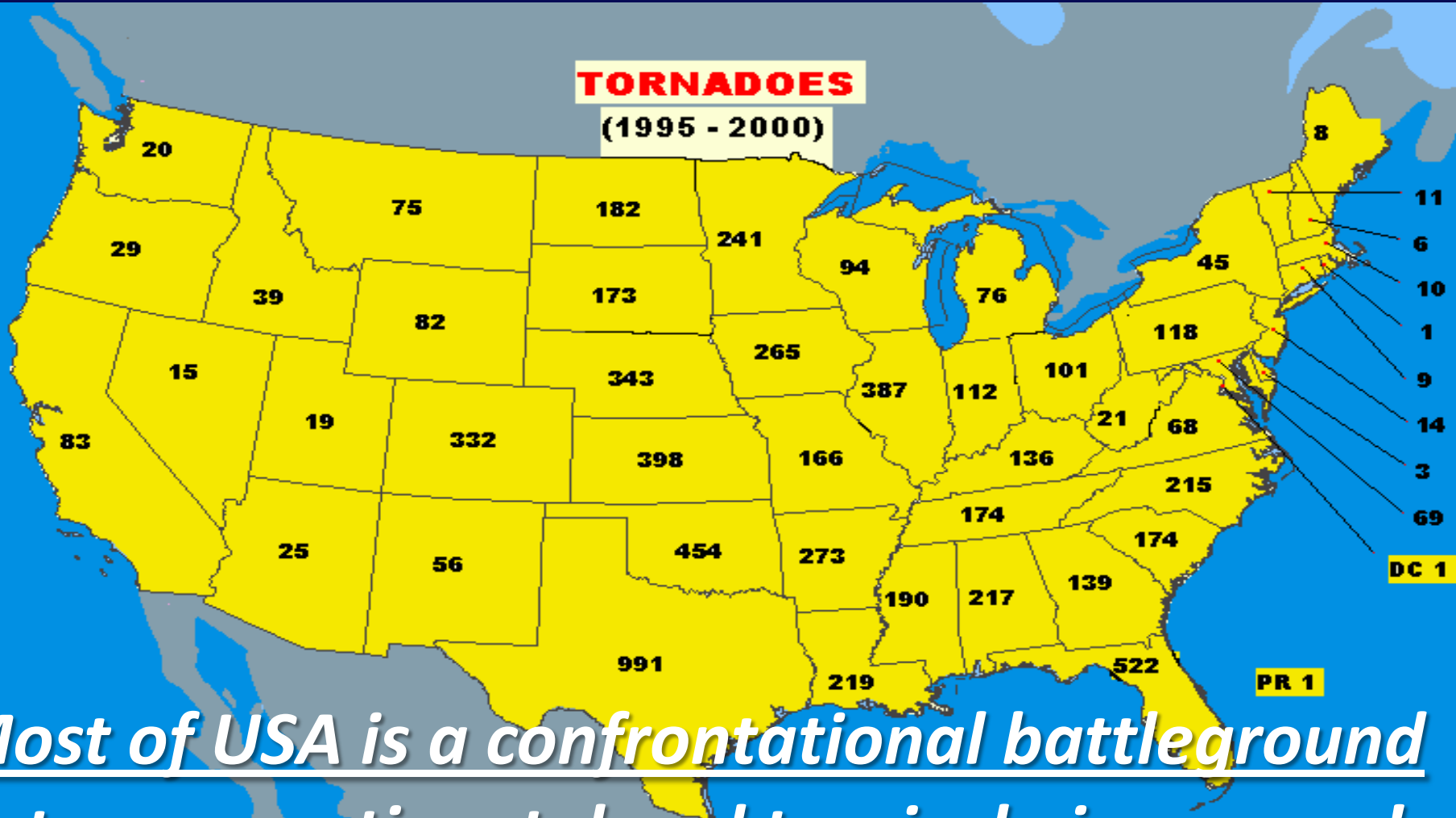
**NWS Emergency Response Meteorologists  
“ER-Mets”, providing emergency management  
all-hazards decision-support  
for... **a more resilient homeland !****

**2009 All-Hazards Decision Support Workshop  
Memphis, TN – February 3, 2009**

**Bill Proenza, Regional Director  
National Weather Service – Southern Region**

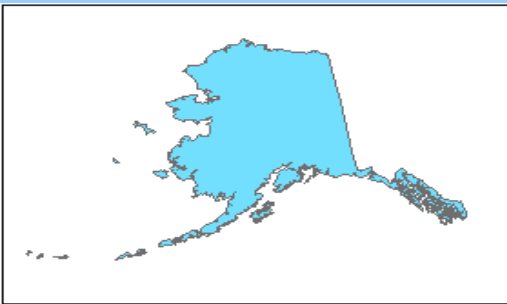
**7402 Tornadoes in just 6 years ! We are  
all severe local storms vulnerable !**

**TORNADOES**  
(1995 - 2000)

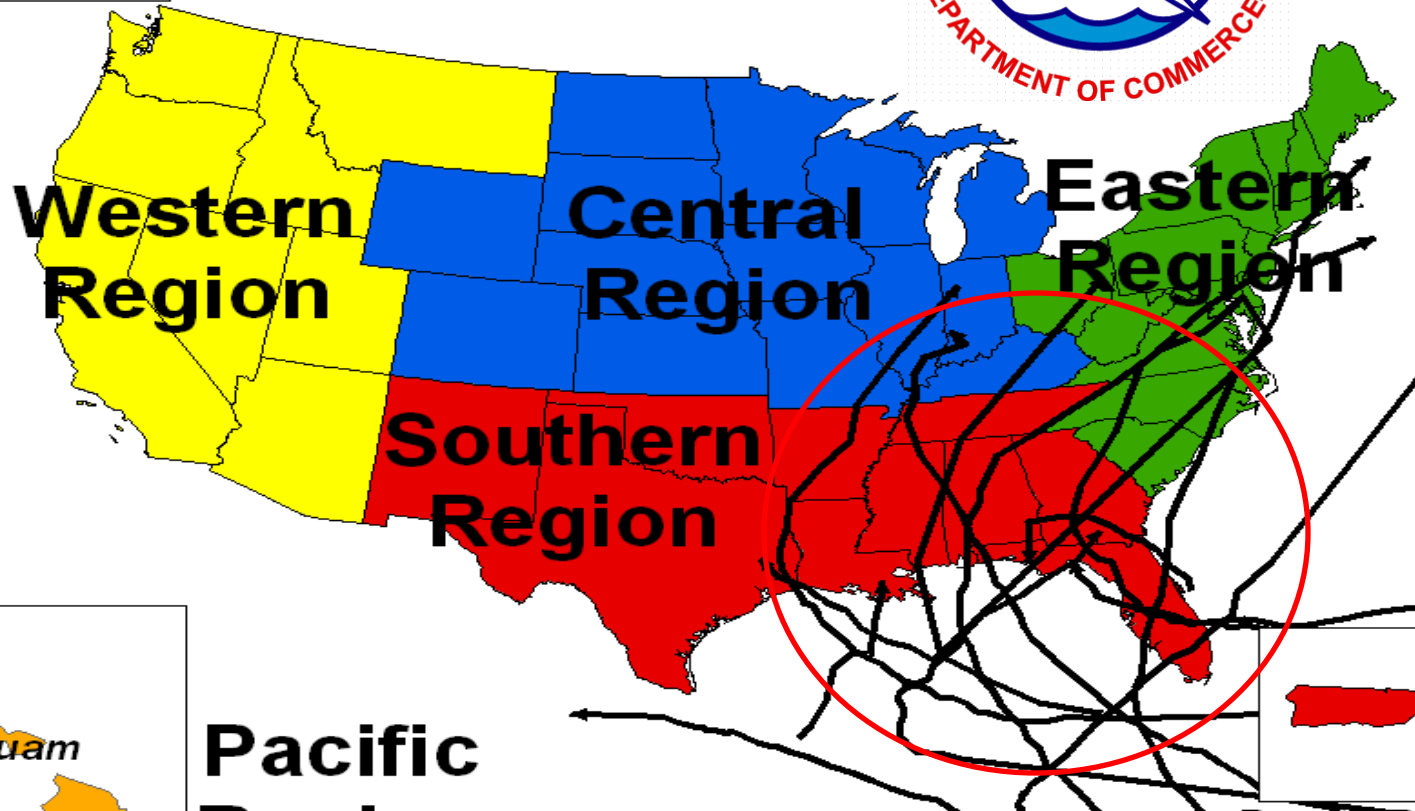
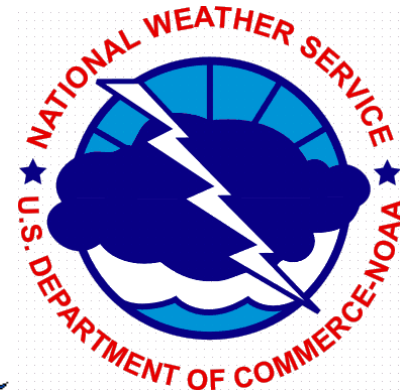


**Most of USA is a confrontational battleground  
between continental and tropical air masses !**

# NWS has 4 large contiguous Regions and 2 “oconus” Regions



**Alaska  
Region**



**Western  
Region**

**Central  
Region**

**Eastern  
Region**

**Southern  
Region**



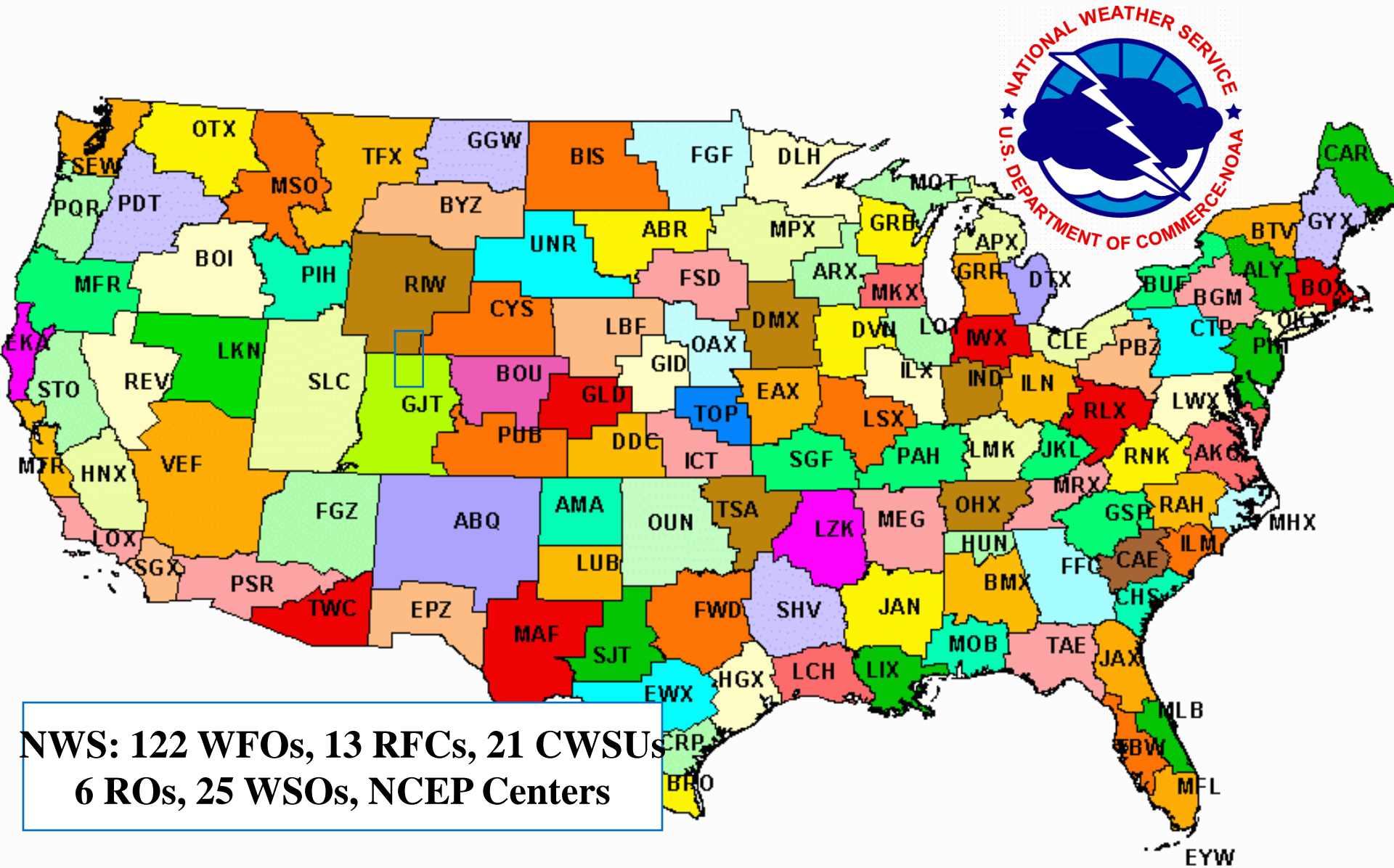
*Hawaii and Guam*

**Pacific  
Region**



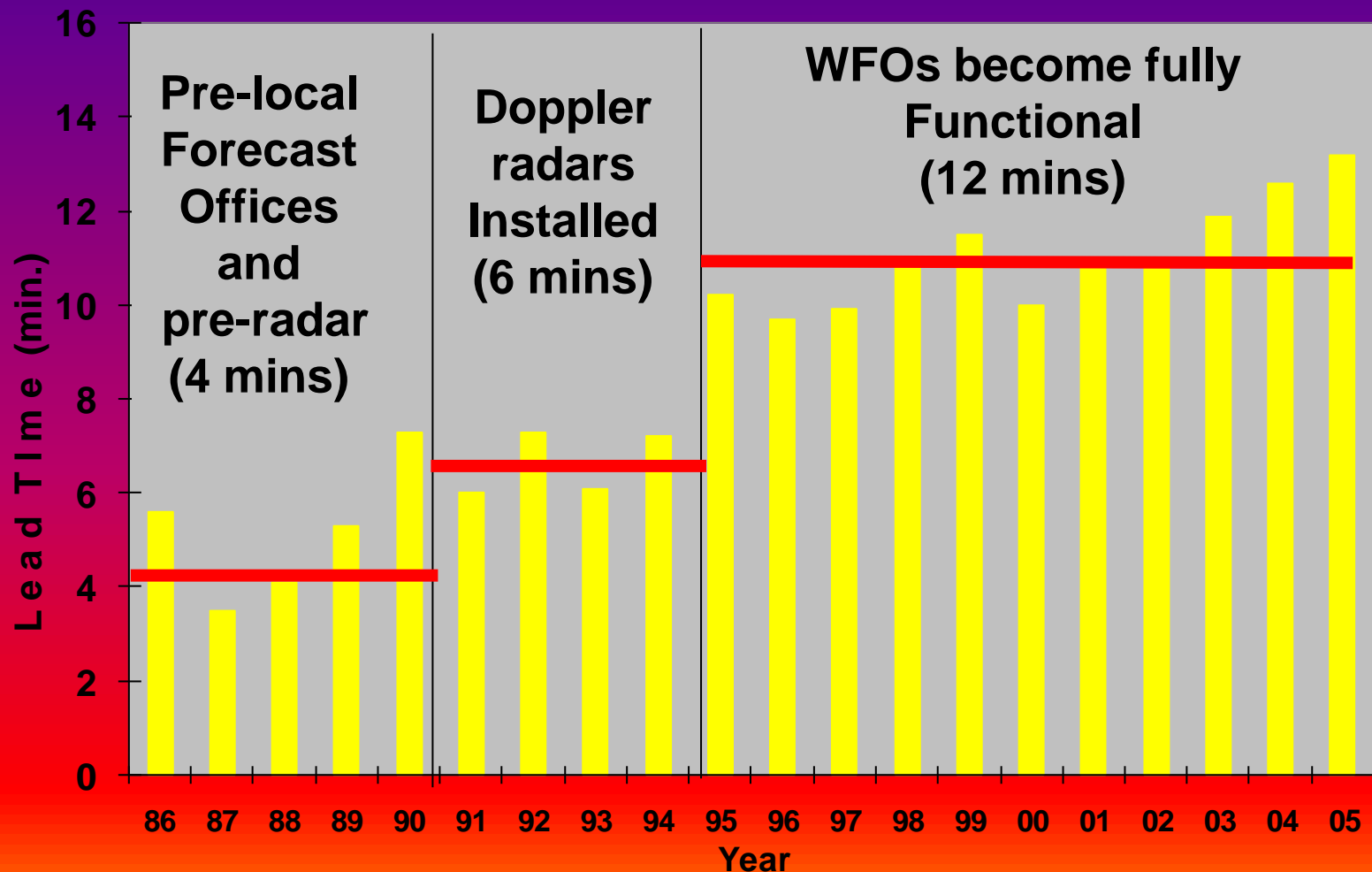
*Puerto Rico and  
Virgin Islands*

# The best source for local weather info & warnings: your *nearby* National Weather Service Office



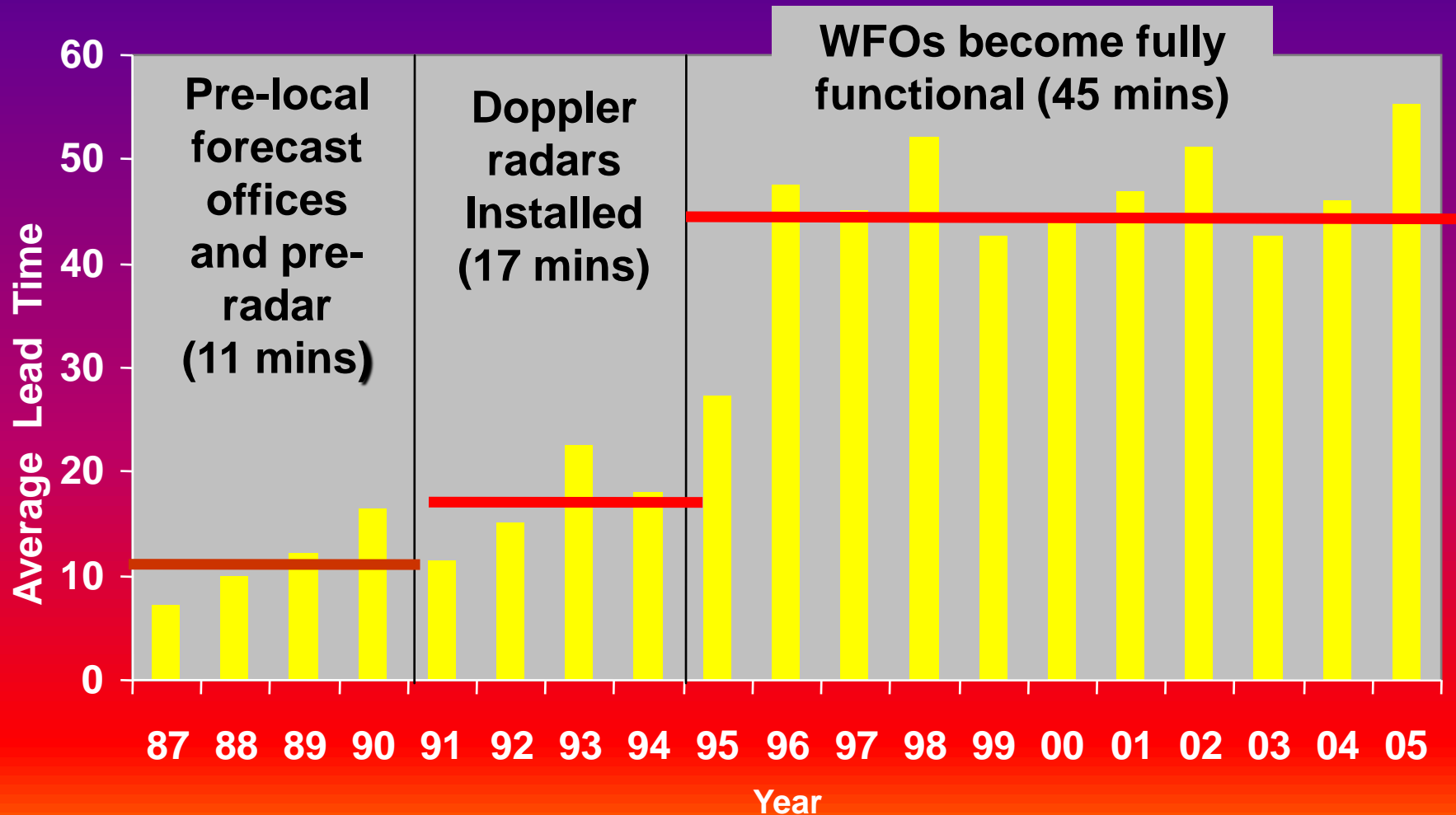
# NWS Modernization Tripled Tornado Warning Lead Times

but improvement pace mostly has leveled-out in last decade

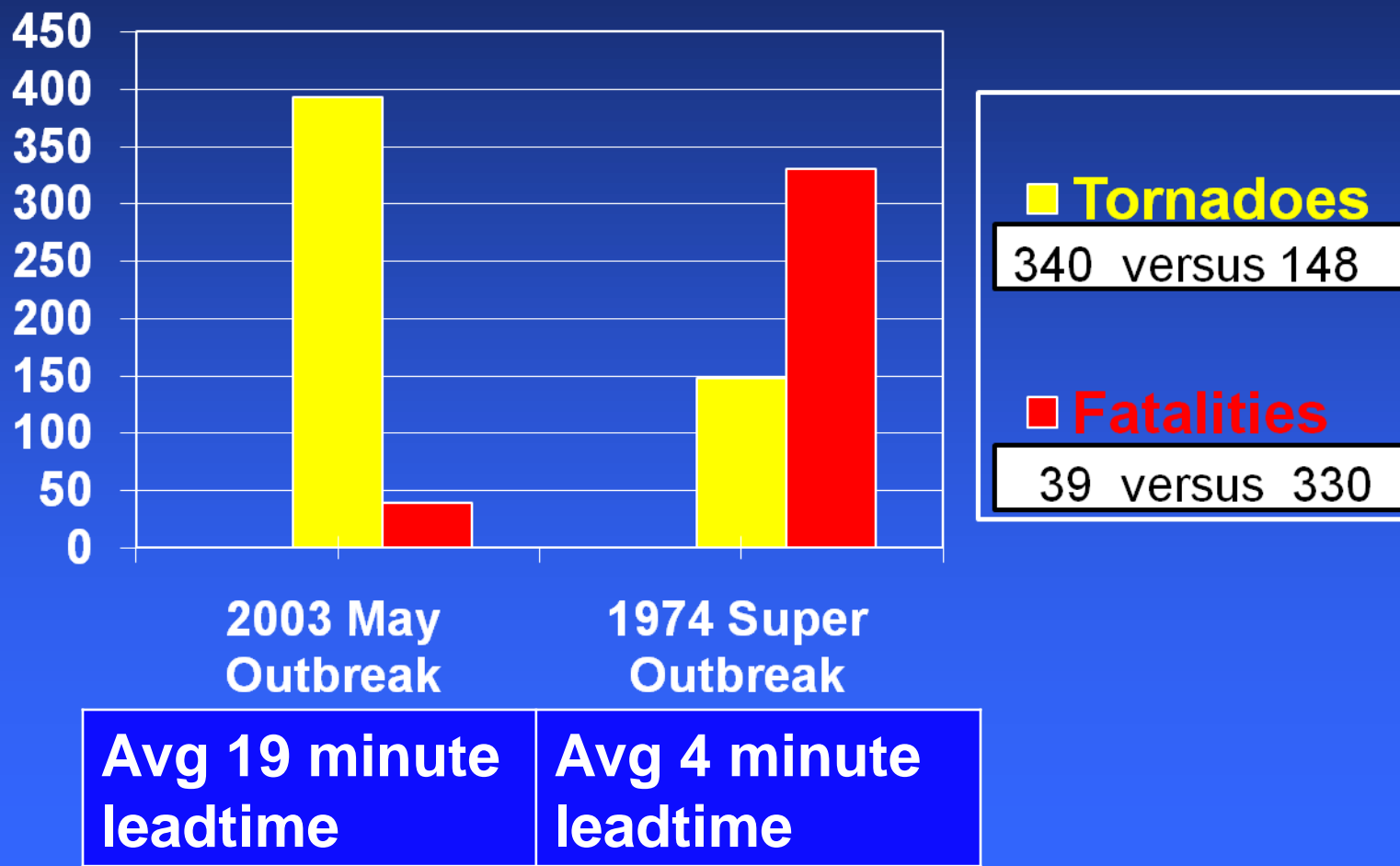


# NWS Modernization Quadrupled Flash-Flood Warning Lead Times

but we direly need “sci-tech” infusion to improve



**Local WFO warnings in '03 tornado outbreak w/ 2.5 times the total tornadoes in '74 we had 1/10 the deaths, modernization is saving lives!**

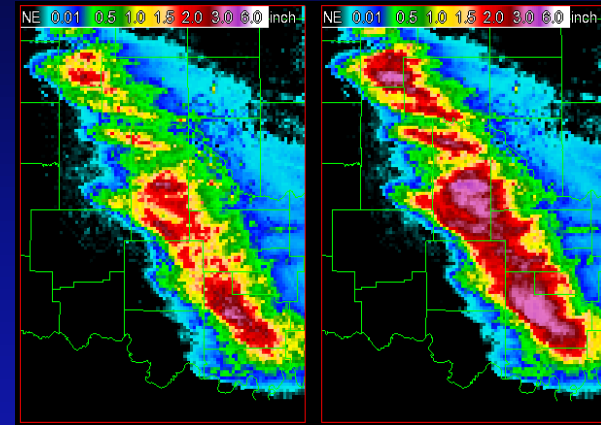


# NWS Emergency Response Meteorologists

## ...24x7 local “ER-Met” Teams !

### Background

- Our Nation, its EMs & other “high-impact” decision-makers are increasingly challenged by natural & unnatural events
- Local/state/federal EMs (& other users) tell us they vitally need focused/direct/on-site decision-assisting weather info
- We’ve had many high-impact seasons:
  - Tornadoes of 2003 & 2008
  - Hurricanes of 2004 & 2005
  - Southern & Western fires of 2005, 2006, 2007, 2008





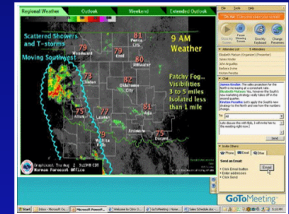
# Both Southern & Central Region's "test-bedding" has determined...

- NWS decision-support highly lauded by EMs, first responders, RAs, local/state government other federal agencies as critical to the protection of life.
- NWS decision-support must be immediate, 24x7, from our office, or to their command center or at the event site.
- NWS office staffing is currently too limited to provide immediate response especially during active weather.

Web Briefing



Live Virtual Briefing



IC Center On-site



IC Incident On-site



Bottom line - NWS is critically needed by local/state/federal decision makers but insufficient staffing & aging tech is compromising us !

# The NWS local “ER-Met” team proposal

## What resources do we need?

- At each WFO, an additional 3 positions (program leader, training met, IT/system/ET/met) enabling offices to immediately self-deploy (24x7)
- Technological/science needs
  - Science (e.g. local severe weather & dispersion modeling etc.) and observations (e.g. nat'l mesonet & next generation radar network)
  - Advanced multi-faceted hardware/software infrastructure for remote and on-site WFO briefings of EOC or command centers (e.g. laptops, GIS, Web support, briefing tables & monitors etc.)
- Training & certification available for entire WFO met staff (“the team”)
  - Science & briefing skills
  - Technological knowledge
- Fiscal resources for on-site services (e.g., per diem & OT pool) and to evolve NWS support to meet local/state/federal decision-maker needs

# New Radar Technology

## ■ Recent Radar Enhancements

- ◆ Improved elevation scans
- ◆ Faster “volume scans”

## ■ Dual-Pol Radar (1 to 5 yrs)

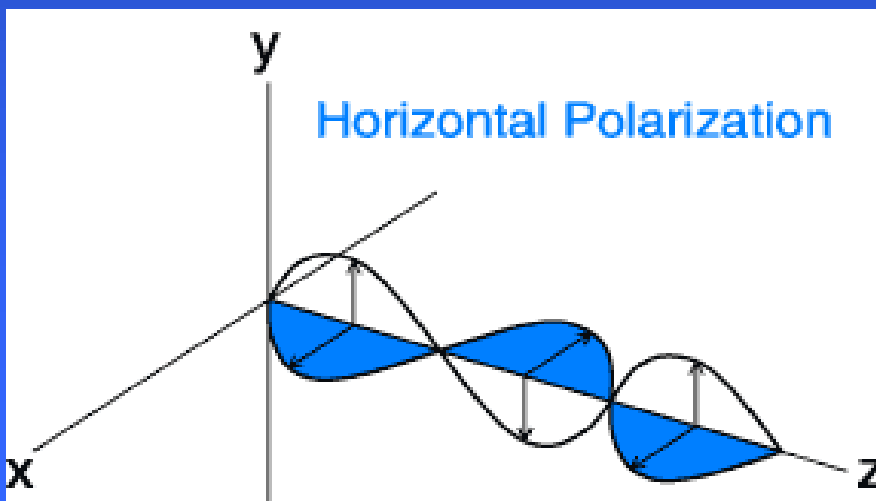
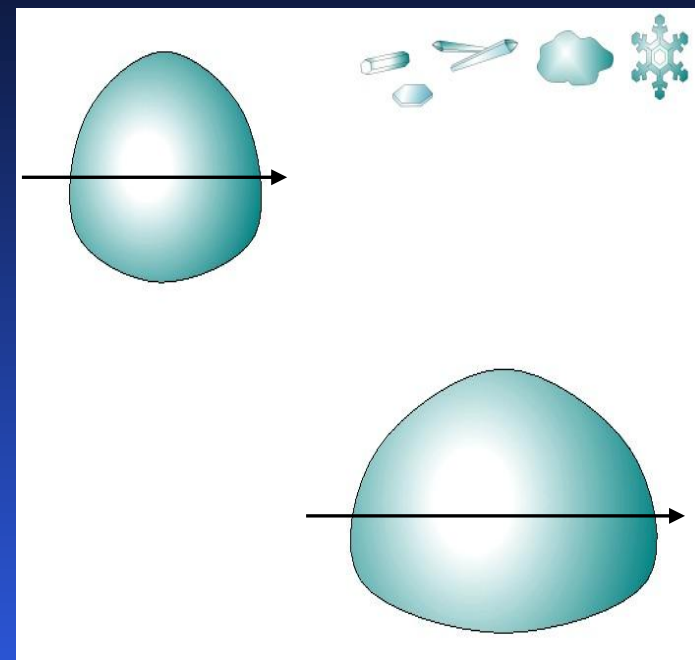
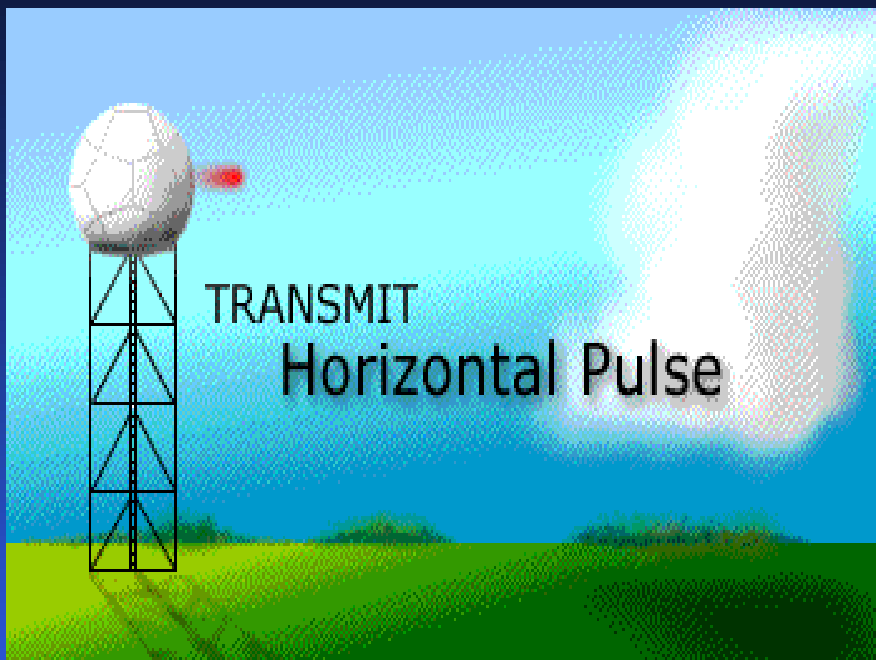
- ◆ Improved resolution, storm structure imaging & velocity data
- ◆ Longer severe weather leadtimes
- ◆ Improved precipitation detection and flood warning lead-times

## ■ Phased Array Doppler (10+ yrs)

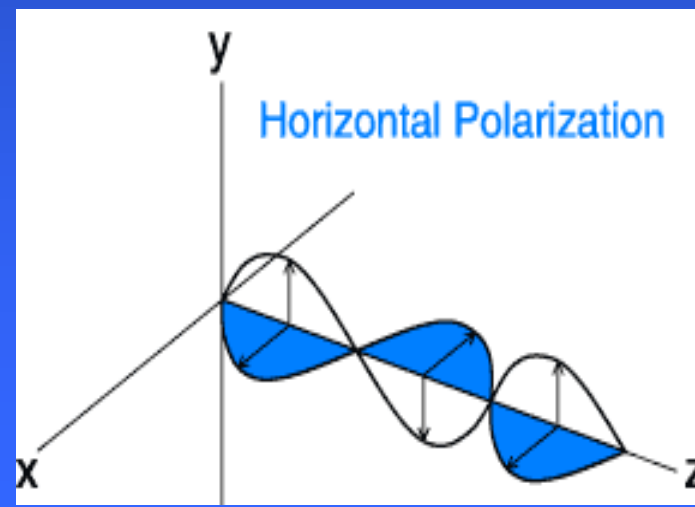
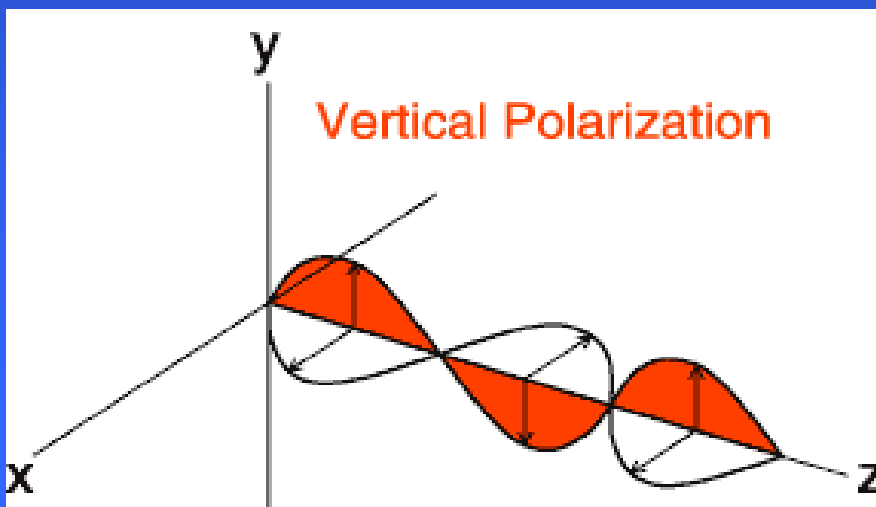
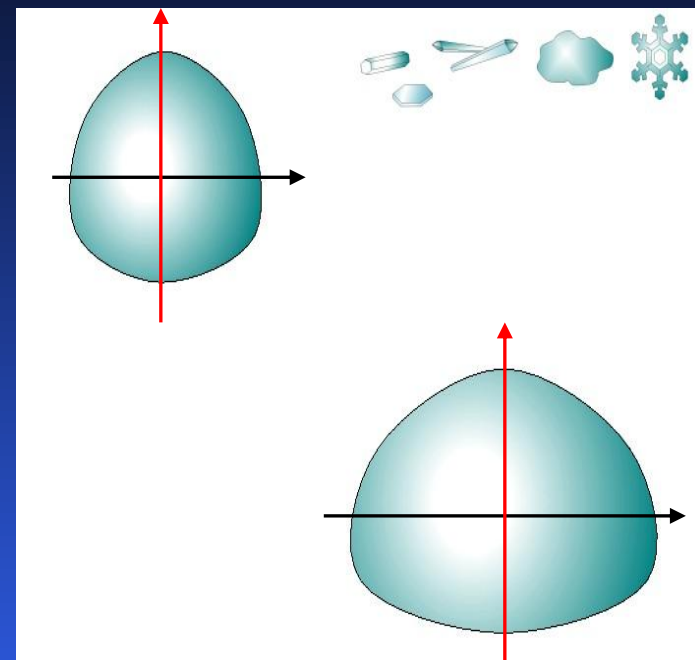
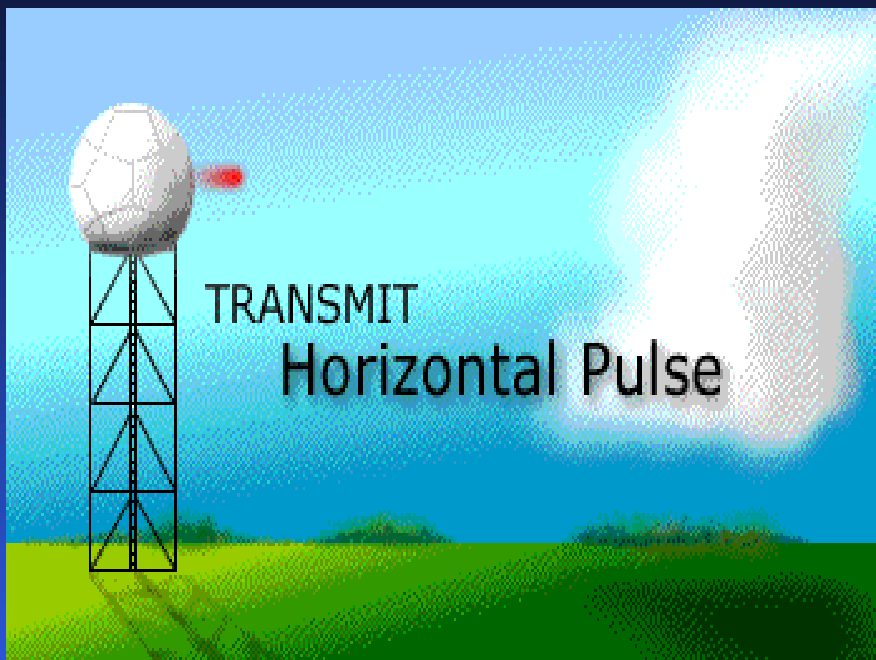
- ◆ With 30 second “volume scans” adding 4+ minutes to tornado lead-times.
- ◆ Highest resolution on velocity data, imaging, precip type !

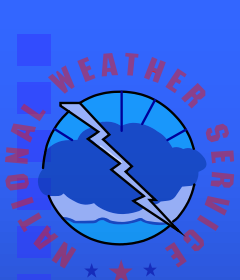


# Current WSR-88D Radar



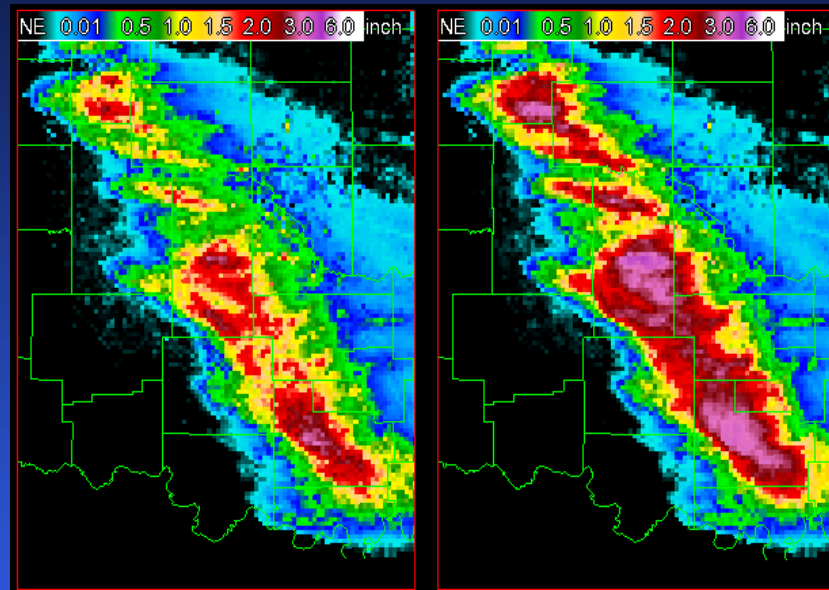
# Dual-polarization Radar





# Dual-Polarization Doppler Radar

- **Dual- Pol results demonstrate much improvement** (*NSSL documented reports*):
  - ◆ **Finer imaging & better data for...**
  - ◆ **rainfall estimation**
  - ◆ **pinpointing tornadoes**
  - ◆ **and much more...**



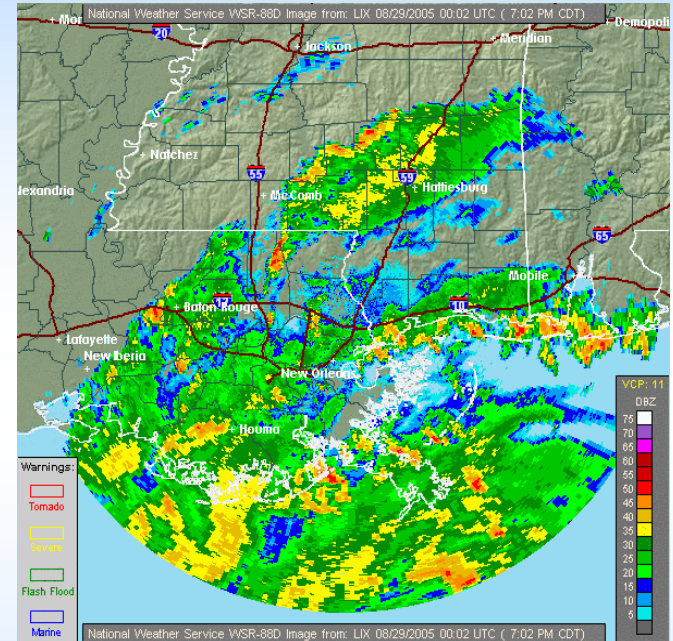
Dual-Pol WSR-88D 1-hr rainfall est. (left) vs. legacy WSR-88D estimate (right).

The right-hand image was a significant overestimate but the Dual-Pol product provided a much better estimate.



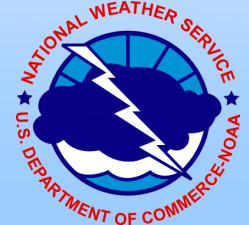
# The NWS most sought after web product is your GIS-based NWS radar network...its there for EMs & public

- National Weather Service WFO GIS radar graphics include the latest **watches and storm-based warning boxes** right on the radar loops.
- The NWS GIS radar gives you the distance and direction of approaching weather to any geographic point of interest to you.
- Our data gives you a running tally of **local rainfall amounts**.
- You can superimpose our radar data unto your own GIS EM awareness and response program.



Example of NWS radar & warnings in Google Earth

[www.SRH.weather.gov](http://www.SRH.weather.gov)

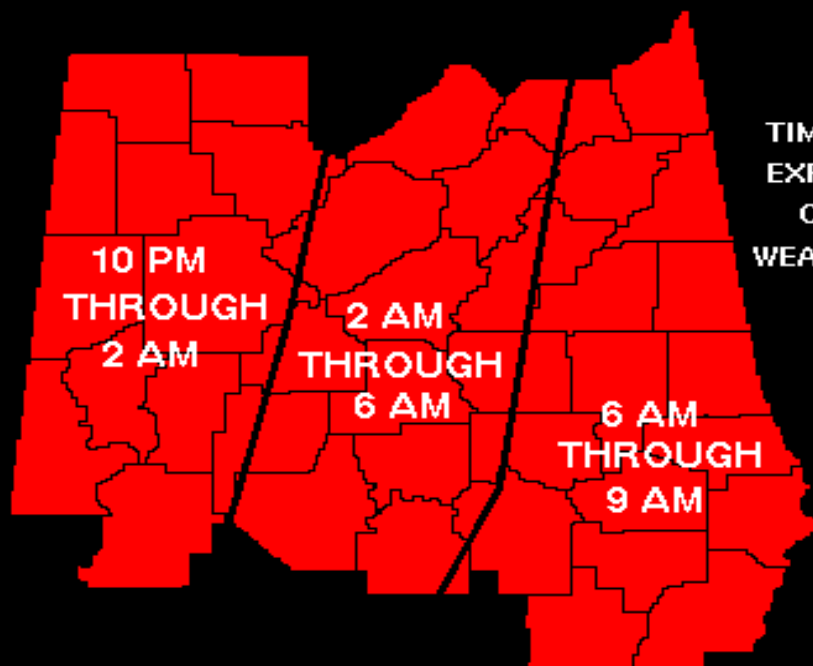


# Graphiccast Example

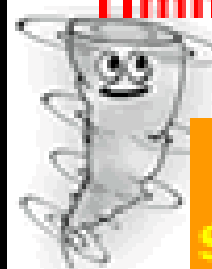
## POTENTIAL THREAT

High Fire Danger
Tornadoes
Severe Tstms
Strong Tstms
Winter Weather
Flooding
Heat/Cold
High Wind
Dense Fog
No Hazardous Weather

HAZARDOUS WEATHER OUTLOOK  
DAY ONE MAP  
ISSUED: 12:24 PM MON MAR 03 2008  
EXPIRES: 6:30 AM TUESDAY



TIMES INDICATE  
EXPECTED PEAK  
OF SEVERE  
WEATHER THREAT



**Timmy the Twister**  
says

**Moderate Risk  
of  
Severe Weather**

## DAYS TWO THROUGH SEVEN

Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
2 EARLY			1		

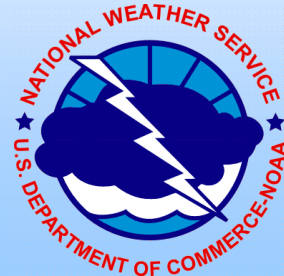
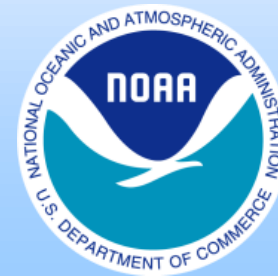
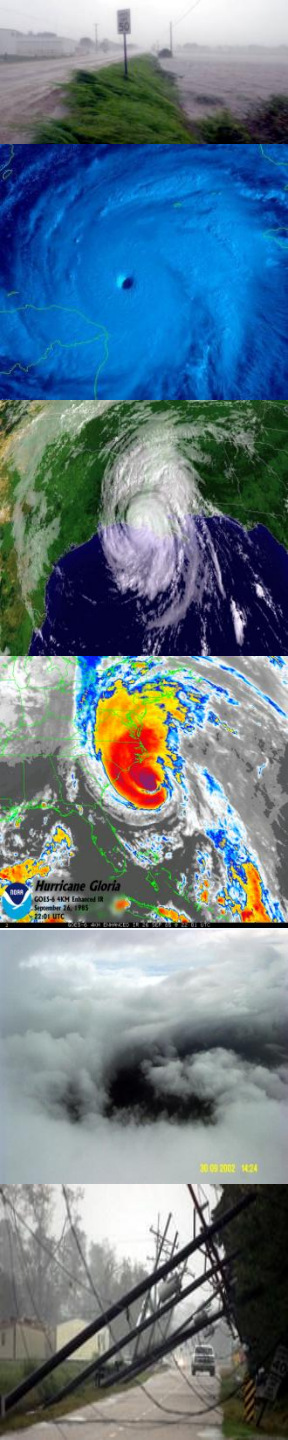
CONFIDENCE LEVEL:

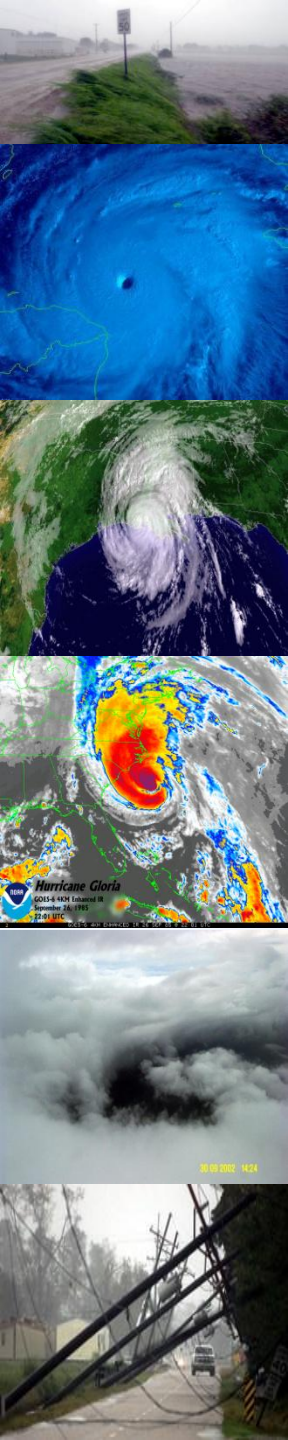
1 2 3 4 5  
Lo ---> Hi



# "ER-Met" proposal... Is it your way ahead?

- Requires a successful budget process supporting a new multi-phased initiative i.e....a modernization of NWS
- An engaged EM community continues to strongly communicate their need for high-impact and homeland security decision-support, **requiring that NWS have...**
- expanded field staffs *plus* a renewed infusion of science and technology, **in this manner the EM community has their weather information needs met and Nation has...**



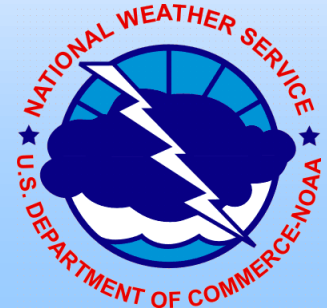


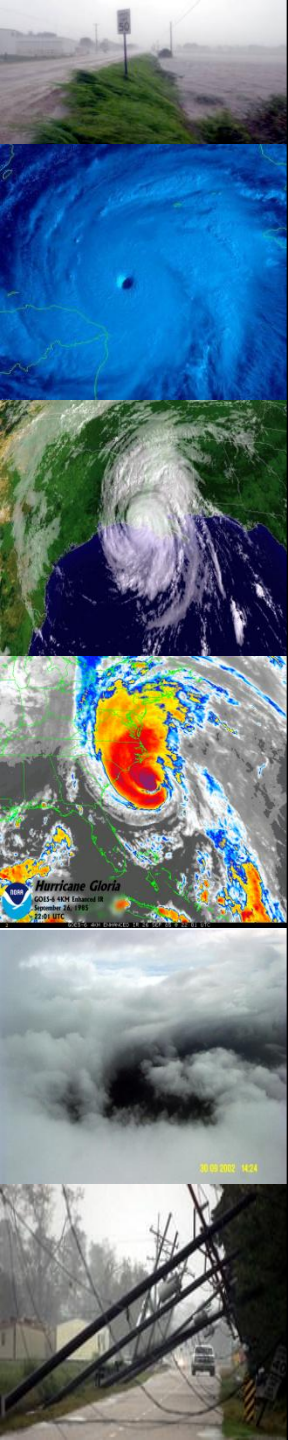
# **...A More Resilient All-Hazards Homeland..**

**DELIVERING 24x7 direct and immediate NWS decision-support for local/state/federal emergency decision-makers**

*Such local NWS services epitomizes the concept:*

**...government closest to the people, serves best.**





# Comments...Questions ?

***“A nation committed to understanding severe weather & being prepared... avoids having to learn through tragedy”***

Bill Proenza, Regional Director  
National Weather Service, Southern Region



**[www.SRH.weather.gov](http://www.SRH.weather.gov)**

